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Huntsville Center standardizes OE contracts

by Carol Youkey, Huntsville Center, Ordnance and ExplosivesTeam

As trends and policy change, contract requirements must do the same. A thorough review with involvement of a large, diverse segment of the OE Team resulting in unified, coordinated requirements was the goal of the DID revision process.

Looking for ways to improve and streamline the ordnance contracting process, members of the Ordnance and Explosives (OE) Team at the U.S. Army Engineering and Support Center, Huntsville, Ala., recently reviewed and revised standard requirements for OE removal contracts. The standard requirements are known as OE Data Item Descriptions (DID's) and are included in basic contracts because they apply to most removal actions. Including the DID's in the basic contracts simplifies the writing of individual project task order requirements and also communicates the requirements to the contractor in a more consistent manner. Instead of preparing stand-alone requirements in each task order, requirements that are the same from project to project are simply referred to by DID number in the task order statement of work. This not only saves time but helps to ensure consistency among similar projects, which is advantageous to both the contractor and government teams.

The recent review also incorporated the latest revisions generated by policy changes and also made significant changes in the DID's for preparation of OE removal action work plans. The revised DID's specify a format for work

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Unfused munition found at Spring Valley

by Doug Garmon, Baltimore District PAO

The U.S. Army Corps of Engineers, Baltimore District, unearthed an unfused World War I munition on 16 February 1999, while preparing the property on Glenbrook Road for the planned intrusive investigation scheduled next month.

Ordnance specialists from the Corps of Engineers found the unfused 75-mm projectile just below the surface in the backyard of the Glenbrook Road property. All preparatory work stopped immediately at the site. After Army ordnance specialists from Aberdeen Proving Ground, Md., arrived, they determined the munition was stable and unfused. Initially the munition was characterized as a possible smoke round containing no chemical warfare agent.

Ordnance specialists placed the munition in a sealed container and moved it to the Corps' Interim Holding Facility located off Dalecarlia Parkway. After further testing using x-rays and a neutron-emitting device, ordnance specialists confirmed that the munition did not contain any chemical warfare agent or explosive capabilities. On February 17, the empty munition was transported to Andrew's Air Force Base. On February 18, the munition was transported from Andrews to Fort A.P. Hill in Virginia where it was destroyed. No residents in the community were required to evacuate during the removal of the munition.

The Corps' planned intrusive investigation at the Glenbrook Road property scheduled to begin in March is focused on the two anomalies that are possible suspect burial sites for

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Teamwork the key to Fort Dix ordnance investigation

by Kim Gillespie,
Huntsville Center PAO

The Fort Dix site investigation was unique because the state prison is located on the installation's property. The exclusion zone included the prison's recreation area and a small portion of the prison facility. To meet the exclusion zone requirements, the Corps developed a plan to move the inmates during the site investigation.

Conducting any ordnance investigation requires extensive planning and coordination. AtFort Dix, N.J., unique circumstances presented an additional challenge to the project's planning and coordination, since the work required the movement of New Jersey State Prison inmates.

"The Fort Dix situation is so unusual because the state prison is located on the installation's property. A lot of hard work and planning, and particularly support from the installation, made a potentially difficult situation proceed smoothly," said Glenn Earhart, Fort Dix ordnance project manager at Huntsville Center. Because of teamwork, the project was completed on schedule and within budget, while ensuring public safety and security during the work.

Under BRAC, about 280-acres at Fort Dix were identified for potential transfer from the Army to other Federal or State agencies. As part of the ordnance investigation, an archive search report identified areas requiring further investigation, including the State of New Jersey Mid-State Correctional Facility. "The area we investigated is about 12 acres and includes the main recreational yard and the non-concrete areas on the boundaries of the prison," said Earhart.

The area was investigated through geophysical mapping, which uses sensing equipment that records and maps items that could be ordnance. Suspect items were then identified for excavation.

"The small size of the project area meant that the exclusion zone included the prison's recreation area and a small portion of the facility. The exclusion zone is an area that is subject to the affects of any ordnance incident that could occur during excavation of anomalies and therefore must be evacuated—with the exception of the trained ordnance specialists employed by the contractor," explained Earhart.

As the work plan came together, the Corps developed an evacuation plan (or in this case, inmate movement plan) based on feedback and input from facility officials. "The team also met with prison officials twice after a draft of the plan was completed to ensure the prison's requirements and all coordination between parties had been completed," said Earhart.

The initial team included the Fort Dix BRAC Environmental Office, the State of New Jersey Mid-State Correction Facility officials, Corps of Engineers' Baltimore District, Corps of Engineers' OE Design Center in Huntsville, and the contractor, Foster Wheeler, Inc.

Rich Sample, the Fort Dix BRAC Environmental Coordinator, praised the Corps for pulling the team together and working with the correctional facility officials to plan for temporary inmate relocations. "The Corps' experience with ordnance projects and their requirements really helped the correctional facility plan for the intra-facility movement of the inmates," said Sample.

The movement of the inmates enabled the contractor to safely dig and identify the suspect items in the recreation yard and boundary areas. No unexploded ordnance was found, which indicates that the property will be safe to transfer.

Earhart emphasized that the installation's support was crucial to the project's success. "Not only did the Fort Dix BRAC Environmental Office assist the Corps and its contractor, but organizations throughout the installation lent their support," said Earhart.

The Fort Dix Military Police coordinated the traffic issue and intermittent road closures that were necessary during excavations, while the Logistics Directorate and the Defense Reutilization and Marketing Office coordinated the recycling of metal and ordnance scrap recovered from the excavations. The 760th Explosive Ordnance Disposal Unit at Fort Dix also provided support.

"Having such terrific support and coordination meant that the ordnance investigation was completed in a safe and timely manner. Ultimately, that means the BRAC process was facilitated and the land transfer to the community becomes closer to being implemented," said Earhart. □

Worst things first: ordnance sites prioritized by risk

It was a case of so many sites, so little time. With hundreds of ordnance and explosives (OE) sites to investigate, Huntsville Center wanted to tag projects presenting the highest risk to the public. The idea was to develop a priority list so that Corps of Engineers' divisions would know which projects presented the most danger to the public and could plan OE work accordingly. On 25 November 1998, the list was formalized by Headquarters, U.S. Army Corps of Engineers (HQUSACE) and implemented.

NAT RANK	DIV RANK	ASR RAC	InPR RAC	CAT	SEV	PROB	SEV	PROB	PROJECT	DIV	SITE NAME	ACREAGE	ASR	EE/CA	TCRA	RA	OM
3	1	1	1	DE	I	A	46	37	E01L000701	LRD	CAMP ELLIS MILITARY RESERVATION	17,455.00	E	—			3
6	2	1	4	DE	I	A	36	30	G05N007906	LRD	KINGSBURY ORDNANCE PLANT	540.00	E		3		3
14	3	1	1	DE	I	B	25	36	E05B007000	LRD	FORT CUSTER RECREATION AREA	2,932.37	E				3
33	4	1	2	DE	I	B	22	34	G05D1000704	LRD	LOCKBOURNE AIR FORCE BASE	2,042.62	E				3
35	5	1	1	DE	II	A	19	30	E05L004102	LRD	CAMP GRANT	5,500.00	E				3
48	6	1	1	DE	II	A	14	39	G05D1002706	LRD	ERIE ARMY DEPOT	1,189.16	E	—	3		3
76	7	1	1	DE	II	A	18	28	E05N003402	LRD	CAMP CLAYBANK AAA FIRING RANGE	448.56	E				4
101	9	2	2	DE	II	B	28	36	E05L000203	LRD	ILLINOIS ORDNANCE PLANT	22,481.90	E	—			3
104	11	2	1	DE	II	B	28	35	E05N002505	LRD	KINCHELOE AIR FORCE BASE	7,265.55	E				3
105	12	2	2	DE	II	B	28	35	G04Y003806	LRD	CAMP BRECKINRIDGE	35,636.55	E				1
138	13	2	2	DE	II	B	16	33	G05D1000806	LRD	SCIOTO ORDNANCE PLANT	12,452.00	E				4
243	17	3	2	DE	II	C	14	19	E05L010203	LRD	SAVANNAH ORDNANCE PLANT	19,093.36	E				3
244	18	3	3	DE	II	C	14	18	E05L009903	LRD	GREEN RIVER ORDNANCE PLANT	8,243.34	E				4
269	19	3	2	DE	II	C	18	16	G03W000304	LRD	DOLLY SODS WILDERNESS	6,168.00	E	3		—	4
275	20	3	3	DE	III	B	8	34	E05N003902	LRD	GRAND RAPIDS NG TARGET RANGE	193.60	E				4
329	22	3	3	DE					G04Y001606	LRD	KENTUCKY ORDNANCE WORKS	16,126.00	E				3
408	23	4	2	DE	II	D	18	11	E05N000501	LRD	FT BLISS/OP LUCAS TARGET RANGE	2,548.00	E				3

Above is a sample of the OE site priority list. Priorities are based on hazard severity and hazard probability. The list is an important factor for programming future OE projects. The entire list can be accessed on the OE website at http://www.hnd.usace.army.mil. Select "Product Lines," "Ordnance and Explosives," "Business Opportunities," and "Priority Listing of Ordnance Projects by Division" to find the list.

To develop the list, Huntsville first ranked all OE projects nationally; then they prioritized projects within each of the seven geographical divisions.

Those Division projects are divided into four categories:

- Part I, conventional OE sites with completed archives search reports (ASR's).
- Part II, chemical warfare materiel (CWM) sites with completed ASR's.
- Part III, conventional OE sites with only completed inventory project reports (InPR's).
- Part VI, CWM sites with only completed InPR's.

Parts II and IV will be eliminated as archives search reports are completed.

Hazard severity and hazard probability are the basis for the rankings. Ordnance projects were first sorted by a dual severity and probability ranking. That process yielded about 115 sites. Those sites were then prioritized by only hazard severity, thereby assuring that the most hazardous and most dangerous sites were ranked first.

The priority list is in the form of a spreadsheet and tracks other information as well, including acreage and the completion of various project phases. The list is updated quarterly as projects progress. The figure is a sample of the list.

Corps divisions use the list as a prioritization guide. The list is an important factor for programming future OE projects. If divisions find it necessary to deviate from the priorities, HQUSACE requires that they coordinate with Huntsville Center and document their justification for changing priority.□

Contracts *continued from page 1*

plans, with each work plan chapter dedicated to a specific subject (e.g., Chapter 2: Technical Management Plan; Chapter 3: Explosives Management Plan, etc.). The standardized arrangement of future work plans should result in time and cost savings to the contractor during work plan preparation, since the framework of the document will remain consistent from project to project. Also it should make government review easier.

Furthermore, the revised DID's simplify the contractors' monthly data reporting requirements to reflect current needs. Additionally, a DID was created to require a weekly status report, but only because this requirement was already being written into the majority of OE removal task orders by project teams. Once the new DID is part of the basic contracts, the government and contractors' project teams will no longer have to adhere to varying weekly reporting requirements that currently are written in the individual project task order statements of work. Instead, one standard set of requirements will be specified and contractors will be able to prepare and use a report template for all task orders. □

Civil engineer Carol Youkey has been an ordnance project manager at Huntsville Center since 1995. She is a registered professional engineer and land surveyor in Alabama.

Explosive improvements at Huntsville Center streamline OE processes

by Betty Neff, Huntsville Center, Engineering Directorate

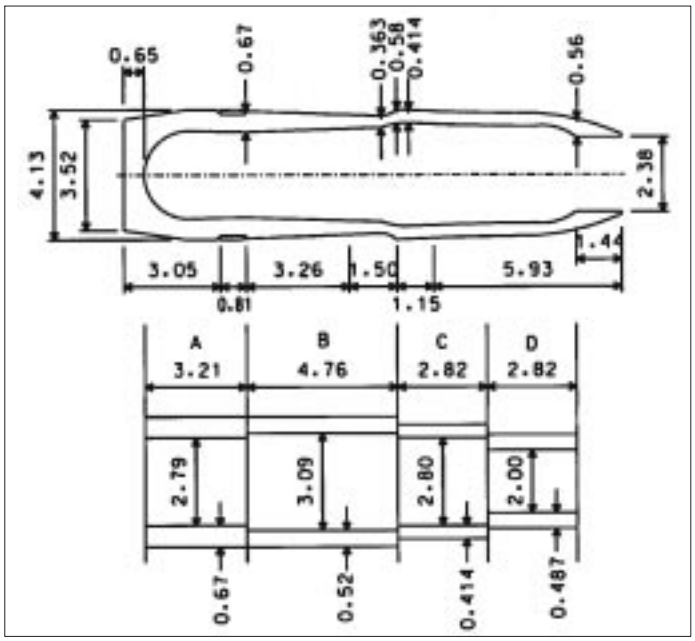
How far will it go? That's a basic question for those working with things that go bang. For Huntsville Center ordnance and explosives (OE) safety specialists, the travel distance of fragments from intentional or accidental detonation of cased explosives is a major safety factor. Whether excavating an anomaly or demolishing duds, site workers must use the correct safety distance to minimize the risk of injury or death from fragment projectiles.

The Department of Defense (DOD) sets general standards for permissible exposure to hazardous fragments in DOD 6055.9STD, "DOD Ammunition and Explosives Safety Standards." The general standard for withdrawal distance is 2,500 feet for munitions less than 5 inches in diameter and 4,000 feet for munitions more than 5 inches in diameter. That one-size-fits-all approach can be costly, however. That's why Huntsville Center looked for a better option.

"If you can determine the maximum fragment throw range for the specific munition, you can use that distance with a safety factor instead of the 2,500 or 4,000 feet," says Dr. Michelle Crull of Huntsville Center's Structural Branch. "Our goal was to calculate the maximum fragmentation distance for specific munitions."

Building on existing standards and methods, Huntsville Center developed models for calculating distances as well as the software for running the calculations. The models are based on existing safety standards and methods, including NATO AASTP 1, "NATO Safety Principles for the Storage and Transportation of Ammunition and Explosives," and TM 5-1300, "Structures to Resist the Effects of Accidental Explosions."

With these models, Huntsville has been able to reduce withdrawal distance without increasing risk. Crull says, "The models cut down on engineering controls, or barricades, and, therefore, reduce costs for labor when preparing sites for excavation." Reductions can be significant. For a 20-mm high-explosive round, the withdrawal distance was reduced to 318 feet.



The figure shows the geometric model for a 105-mm M1. With these models, Huntsville has been able to reduce withdrawal distance without increasing risk. For a 20-mm high-explosive round, the withdrawal distance was reduced to 318 feet. Since the models cut down on engineering controls, costs are reduced as well.

Even more, the models provide for one-time analysis, with results stored in an internal database. Such an approach provides uniform distance calculations and aids in the standardization of safety submissions, which streamlines processes. Also, with Department of Defense Explosives Safety Board (DDESB) approval for the process, site workers do not need to write a justification for withdrawal distances at each site.

To make the calculations, Huntsville first determines the primary fragmentation characteristics of a cased explosive, including initial fragment velocity, weight of the largest fragment, average fragment weight, weight of a fragment using a confidence level, and the total number of fragments. Since most items are cylinders with irregular shape and thickness, the casing is modeled using a series of equivalent cylinders in order to predict fragment behavior accurately. For example, the figure shows the geometric model for a 105-mm M1. As you can see, the casing is segmented into four regions, A, B, C, and D.

Huntsville then uses the Mott-Gurney equations in TM 5-1300 to arrive at fragment characteristics from the geometric model. For example, the table shows the characteristics for the 105-mm M1. Those fragment characteristics may be used to generate a wide variety of data: penetration of fragments into various materials, fragment striking energy, the probability of a fragment of a given energy striking at a given distance, and the range of the fragment trajectory.

Using such data, Huntsville Center developed an analytical method to calculate the range at which the primary fragment density from a cased, cylindrical munition will equal one hazardous fragment per 600 square feet—the acceptable risk standard set

Multiple rounds, multiply care

by Betty Neff, Huntville Center Engineering Directorate

Demolishing multiple rounds may be a bit like making popcorn: One kernel travels the same distance as 10. With multiple rounds, however, placement is everything in order to achieve safe fragment throw distances. That's why Huntsville Center developed the procedures for the demolition of multiple rounds, or consolidated shots. Approved by the Department of Defense Explosives Safety Board on 27 October 1998, the procedures eliminate the need to compute the interaction effects of multiple rounds and are now being used at current OE sites where applicable.

Two situations describe the consolidated shot process:

- Munitions collected from anywhere on site and detonated at a designated, sited disposal area.
- Munitions collected within a grid and detonated at a designated spot within the grid.

Since space on an OE site is at a premium, the procedures were developed to achieve the safest minimum throw distance possible. The key is to place rounds so that the interaction zone between munitions is minimal. Items are arranged horizontally with sides touching. The nose of each munition points in the same direction. Also, lugs and strongbacks and nose and tail plate sections face away from personnel locations. Stacking items ensures that any increased interaction from multiple rounds will blast upward rather than outward, thereby maintaining withdrawal distances.

To findthe number of rounds that can be demolished at one time, the allowable overpressure distance is calculated as the scaled distance, K328, for the total net explosive weight, plus the donor charge to blow the rounds. The maximum fragment range is then calculated for the most probable munition, using the methods defined in HNC-ED-CS-S-98-1, "Methods for Predicting Primary Fragmentation Characteristics of Cased Explosives." (See facing page.)

For example, a 20-mm high-explosive round has a maximum fragment distance of 318 feet. Therefore, the allowable K328 must be below 318 feet. That equals 0.91 pounds of explosives plus a 0.25-pound donor charge. Therefore, a total of twenty-five 20-mm rounds can be demolished at once and still maintain the 318-foot withdrawal distance.

If further reduction of distance is needed, DDESB-approved engineering controls, such as tamping or sandbags, are used.

"Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives Sites" can be accessed through the OE website, www.usace.army.mil. Select "Product Lines," "Ordnance and Explosives," "Technology," and "Analytical Tools."

in DOD 6055.9-STD. The calculation method is based upon the primary fragmentation distribution model provided in NATO AASTP 1. The range of the fragment is calculated through HAZFRAG, a software program developed by Huntsville Center. For a 105-mm M1, that distance is 341 feet, with the probability of impact of a hazardous fragment at only 0.99 percent.

These methods were approved by DDESB on 6 April 1998 "for use in deciding inhabited building distances for primary fragments in site remediation." The methods are outlined in HNC-ED-CS-S-98-1, "Methods for Predicting Primary Fragmentation Characteristics of Cased Explosives," and HNC-ED-CS-S 98-2, "Method for Calculating Range to No More Than One Hazardous Fragment per 600 Square Feet." They are available on the OE website at www.hnd.usace.army.mil. Select "Product Lines," "Ordnance and Explosives," "Technology," and "Analytical Tools."

To access the documents, registration is required for change notification purposes. To register, simply fill out the electronic form and supply a user ID and password of your choice. You will be notified by e-mail that you are registered and that your chosen password is ready for use. □

105-mm M1 Fragment Characteristics					
Region	Initial Fragment Velocity (fps)	Weight of Largest Fragment (lbs)	Total Number of Fragments	Average Fragment Weight (lbs)	Weight of 95% Confidence Level Fragment (lbs)
A	4053.50	0.23	604.18	0.01	0.05
B	4866.18	0.17	1179.59	0.01	0.03
C	5202.93	0.09	812.99	0.08	0.02
D	4809.99	0.11	582.73	0.01	0.02

The table shows the fragment characteristics for a 105-mm M1 round calculated through the Mott-Gurney equations and using the geometric model in the figure on the facing page. Those fragment characteristics may be used to generate a wide variety of data, including the range of the fragment trajectory. Using such data, Huntsville Center calculated the specific range trajectory of the 105, and other munitions, thereby saving time and money on OE investigations and removals actions while maintaining safety in the field.

Innovative solution to ordnance project challenge

by Kim Gillespie, Huntsville Center PAO

Meeting the challenge of the unexpected can sometimes lead to new and better methods. The unexpected challenge for the Corps of Engineers' Huntsville Center was encountering significantly more ordnance in an area at Jefferson Proving Ground (JPG), Ind., a Base Realignment and Closure (BRAC) site. The solution came about through innovation and team work.

"By working together with the U.S. Army Test and Evaluation Command, the Corps' Louisville District, the contractor, and other Department of Defense ordnance experts, we were able to find the best-available methods to address the problem," said Glenn Earhart, ordnance project manager at the U.S. Army Engineering and Support Center, Huntsville, Ala.

Huntsville Center has been conducting an ordnance investigation and cleanup for JPG since 1996. During the fall of 1998, the contractor encountered a mortar field that was contaminated with a substantially larger amount of ordnance than was originally anticipated. The 43-acre area is now estimated to have over 20,000 60-mm and 81-mm mortars. "Our primary concern is, of course, safety, because of the density of contamination in this small area. But anytime you encounter a large amount of ordnance like this, you are also talking about significant cost and schedule increases," said Earhart.

Continuing with the original plan of using two dig teams and a demolition team was still an alternative, but two other methods were also considered. The Air Force offered the use of a remotely operated excavator (backhoe), while the Marine Corps offered the use of a remotely operated dozer developed by the Navy.

The remotely operated excavator was ultimately selected for use at the site. "The dozer rolled the soil into layers, while the excavator allowed the operator to loosen soil and reveal the ordnance without the additional sorting through soil mounds the dozer would have required. But both pieces of equipment offered some advantages over just using the dig teams, however," said Earhart.

Before operating the the remote excavators, contract personnel were required to attend training at Tyndall Air Force Base, Fla. Each excavator operator worked a 30-minute shift operating the controls. Using the remotely operated excavator dropped clearance costs from $70,000 to about $5,000 to $6,000 per week.

Dan Stephens, Deputy Director of Federal Programs for the contractor, UXB International of Ashburn, Va., and a former Air Force Explosive Ordnance Disposal (EOD) Specialist, was aware of the Air Force's remotely operated excavator and was the first to suggest it's use. When contacted, the Air Force offered the excavator at no cost to the Army, but UXB's operators were required to attend training at Tyndall Air Force Base, Fla.

Each excavator operator works a 30-minute shift operating the controls. The controls consist of a joystick and a monitor to observe the excavator arm at work. These are located in a trailer approximately a quarter-mile from the work. "The experience the operators are getting training to use a new technology is very valuable," said Dennis Lecher, UXB Senior UXO Supervisor. The only adjustment the operators have had to make is getting used to operating a control that does not allow the operator to "feel" the movement. "You really rely just on the visual feedback. It's like driving a car and not being able to feel the brakes," described Lecher.

After the excavator reveals the mortars and they are identified, they are "vented," which means a "shaped charge" is placed on the mortars and detonated to ensure all explosive material is destroyed. The mortars can then be discarded as scrap.

Using the excavator, about 1,000 mortars per week have been cleared for a total of nearly 20,000 over 15 weeks. "If we had used a 24-person team clearing 800 mortars per week, it would have taken 25 weeks to clear 20,000 mortars at a cost of approximately $70,000 per week. Using the remotely operated excavator dropped the cost to about $5,000 to $6,000 per week," said Earhart.

Paul Cloud, the BRAC Environmental Coordinator for the U.S. Army Test and Evaluation Command, also praised the teamwork and results of the mortar fieldwork. "Our mission is to ensure that the restoration of the facility is performed in the best way possible. I feel that we got the safest and best technology available for our

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Wayne's World of OE Safety

by Wayne Galloway, Chief, Safety Group, Huntsville Center

During my years working as an ordnance and explosive safety specialist, I have written some brilliant and informative articles, papers, charts, and such that related to various OE subjects. Now, I must inform you that no one, and I do mean no one, has ever seen these articles, papers, or such. This has been due to the fact that they have all been consummated and executed within my own mind where there exists this place I call "Wayne's World of OE," a perfect world of OE. In this private world of mine of OE Safety, everything works out perfect and why not, since here I'm in charge and in control. Here in "Wayne's World of OE Safety" procedures are followed and no one takes the short cuts. There are no accidents or even near misses. No one ever gets hurt in this private OE world of mine because here safety is always the first objective.

As the Chief of the OE Safety Group at the Huntsville Center, I wanted to share with you, especially the individuals who perform UXO-related tasks on OE projects, my concerns for safety—the public's, yours, and the environment that you work in. We in the OE Safety Group have gotten to know many of you over the years, and those of you we don't know may have heard of us. I would like to think that each of you understand and feel that the OE Safety Group's first and basic objective and reason for being in this program is for safety.

We all, from the top to the bottom level, must truly believe that in the OE program safety is and has to be our first concern. "Safety is our first concern," we say it and hear it often. However, with the progress of this program and in the process of trying to provide more land, quicker and cheaper, which has been cleared to acceptable levels, we may sometimes become inattentive to the basic idea that we must focus and stay focused on our first objective—safety. From my observations over the years, I feel there are three main areas where we can be seriously vulnerable to a lack of safety in the OE Program: When we turn over cleared sites to the end users, while individuals are performing on-site work, and when we ensure that the items coming off these sites are free of any explosive hazards.

"Safety is our first concern," we say it and hear it often. However, we may sometimes become inattentive to the basic idea that we must focus and stay focused on our first objective—safety.

In my opinion, we have all been operating within these three areas of risk and vulnerability. At Huntsville Center, because of the recognized inherent risk involved with doing OE work, we have established certain standards and qualification requirements for our OE contractors and our personnel who work in these areas. So, how do we attempt to provide safety? First by placing on-site only the best-qualified and best-trained UXO personnel available to perform this hazardous work. That is required in order to minimize and reduce our risk in all three of those areas of vulnerability.

We are moving faster, have longer more difficult projects, do more projects, etc., with the point being, we are exposed longer to the inherent risks and explosive hazards associated with OE work. With this increased exposure, we must stay focused on the objective of providing safety first for the program. I've seen and heard, as you probably have also, about the different near accidents, misidentifying of rounds, items left in vehicles, performing incorrect procedures and such being done.

Yet we have not had any explosive accidents. Why? Is that because of you, the personnel with the best qualification and training available being used on-site? Is it the type of ordnance being found? Or is it just luck? I still believe it is because of you, the qualified UXO personnel working on the ground in this hazardous OE environment, day after day after day, under all kinds of difficult conditions. You come from a background with the qualification and training to perform these UXO tasks. You also are from a military background with an ingrained discipline in performing the mission. Safety in this program is based on you and protected by you, the qualified individuals who are out there doing these OE projects. If we become complacent about safety with regards to the OE hazards or any other hazards on these projects, then we will not have done our job, and that is to provide the first objective—safety.

Accidents are never intentional, otherwise they wouldn't be accidents. We know what to do in the event of an accident; it quickly takes on a life of it's own with everyone knowing what to do *after* the fact. Our business, your business, and why we're here in the OE Program, is the business of having the most qualified personnel available to perform the main objective of this program—safety and the prevention of having an explosive accident. You cannot allow yourself nor can you afford to become complacent, have mistakes or near accidents, and still provide safety. That's why in my "World of OE" you and I are here, to provide safety. So remember, stay focused on the main objective—safety. This whole program is about you on the ground, providing safety for you and this program.□

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situation, and saving nearly $65,000 a week is also a real bonus to the taxpayers."

Using the excavator was not Earhart's only innovation to the project. For other ordnance work at JPG, he used a fixed-price contract as another approach to maintain quality and save money. Such contracts are still not commonly used in the ordnance field. "But I'm extremely proud of the excavator because it was truly a team effort. We not only found a safe and cost-effective way to perform the work, we also gained some valuable experience that can be applied to other projects and sites."□

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chemical warfare materiel. During the Corps' geophysical survey of the site, other anomalies were identified on the property but were not indicative of a burial pit. At the request of the State Department, Corps specialists were working to verify the nature of those anomalies in conjunction with preparing the property for the March investigation when the discovery of the munition occurred.

From 1917 to 1920, the Spring Valley area was the site of the American University Experiment Station. At this site, military personnel conducted research on and performed small-scale field testing of chemical warfare items.

Following the discovery of 141 World War I munitions in 1993, the Corps of Engineers conducted an intensive two-and-a-half-year investigation of the Spring Valley community. This investigation resulted in the discovery of two unfused ordnance items. A final report summarizing the Corps' investigation was issued in June 1995.□

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